Replacement Sheet

OIPE
JUN 08 2004
PATENT & TRADEMARK OFFICE

FIG. 1
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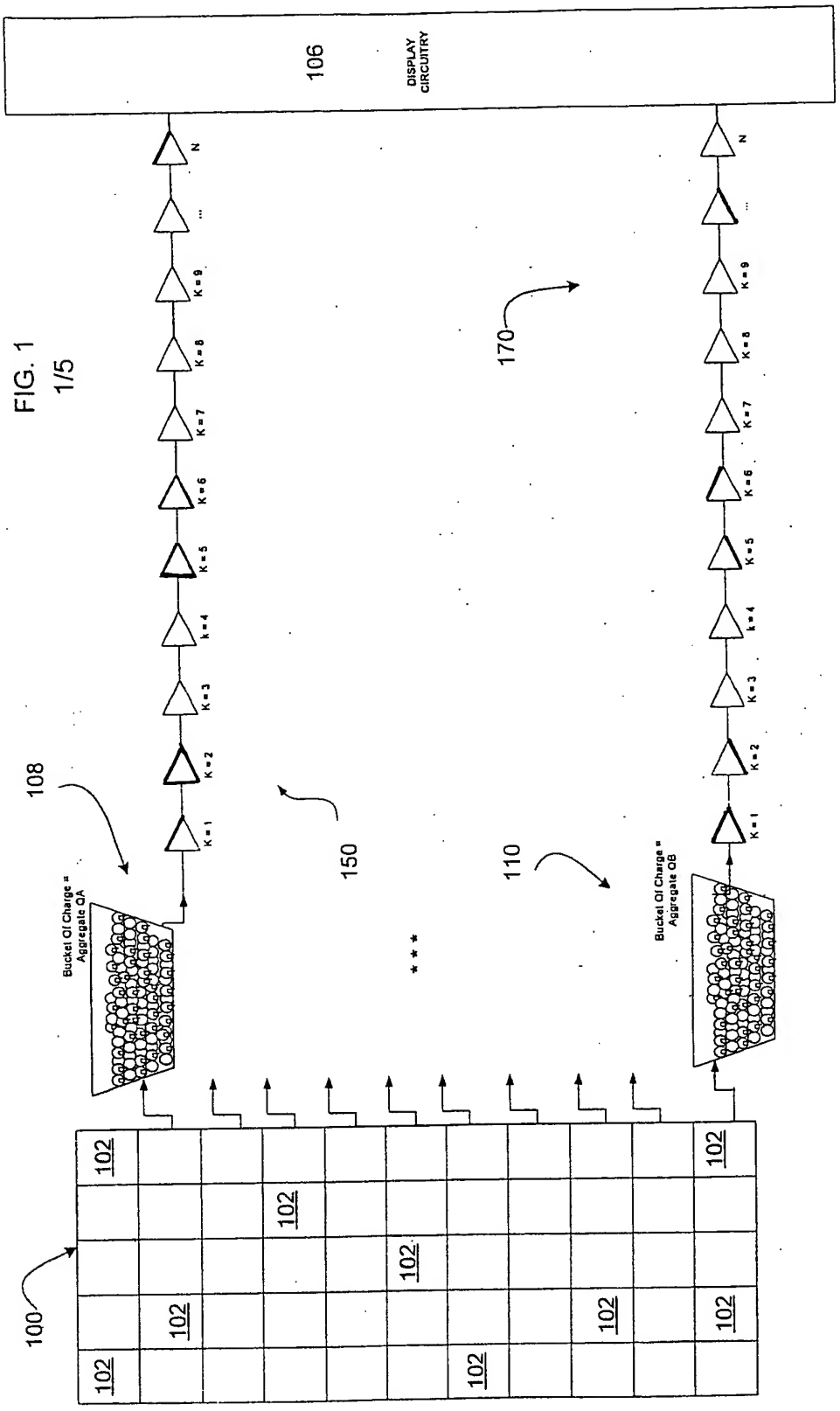


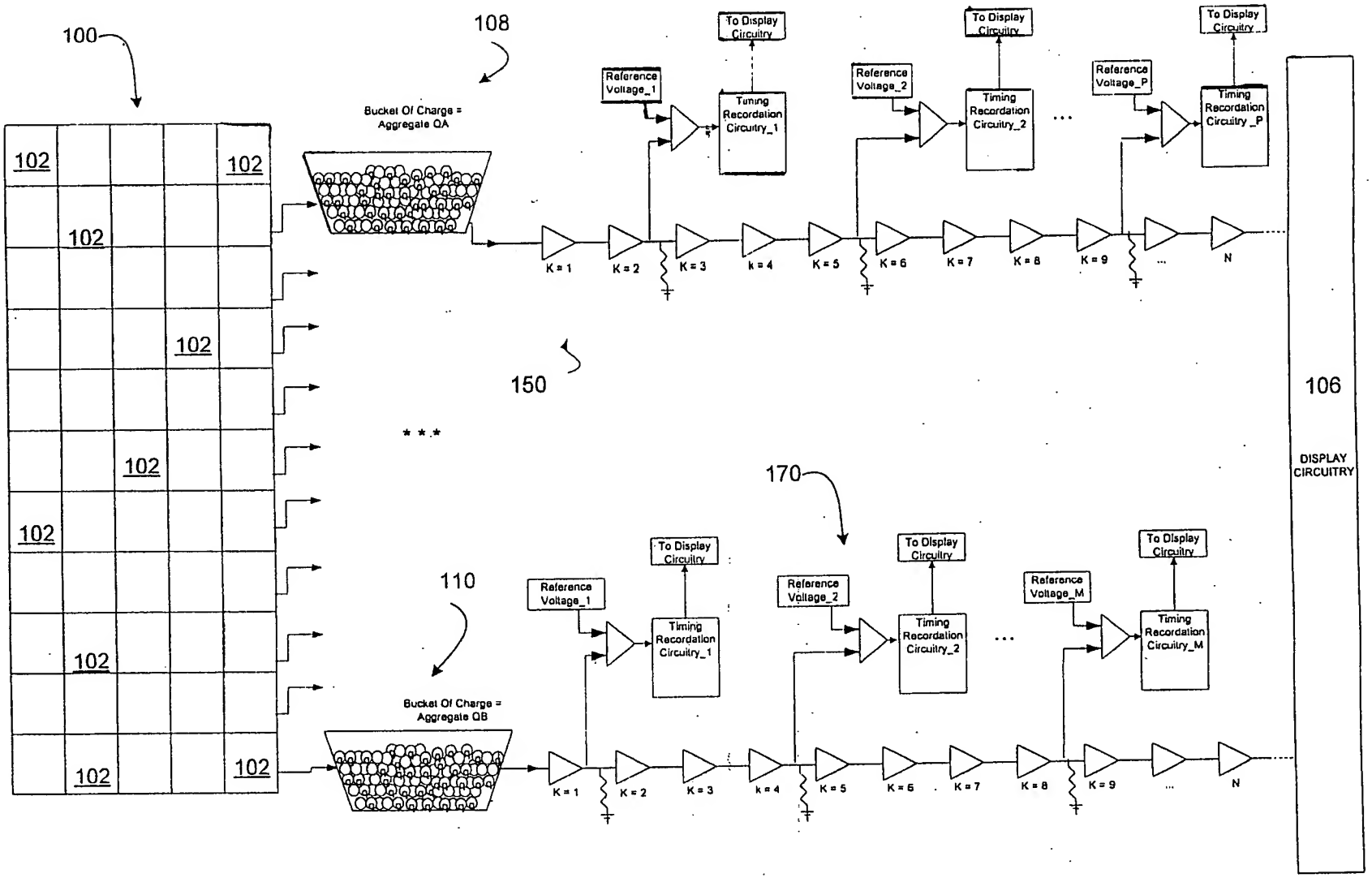
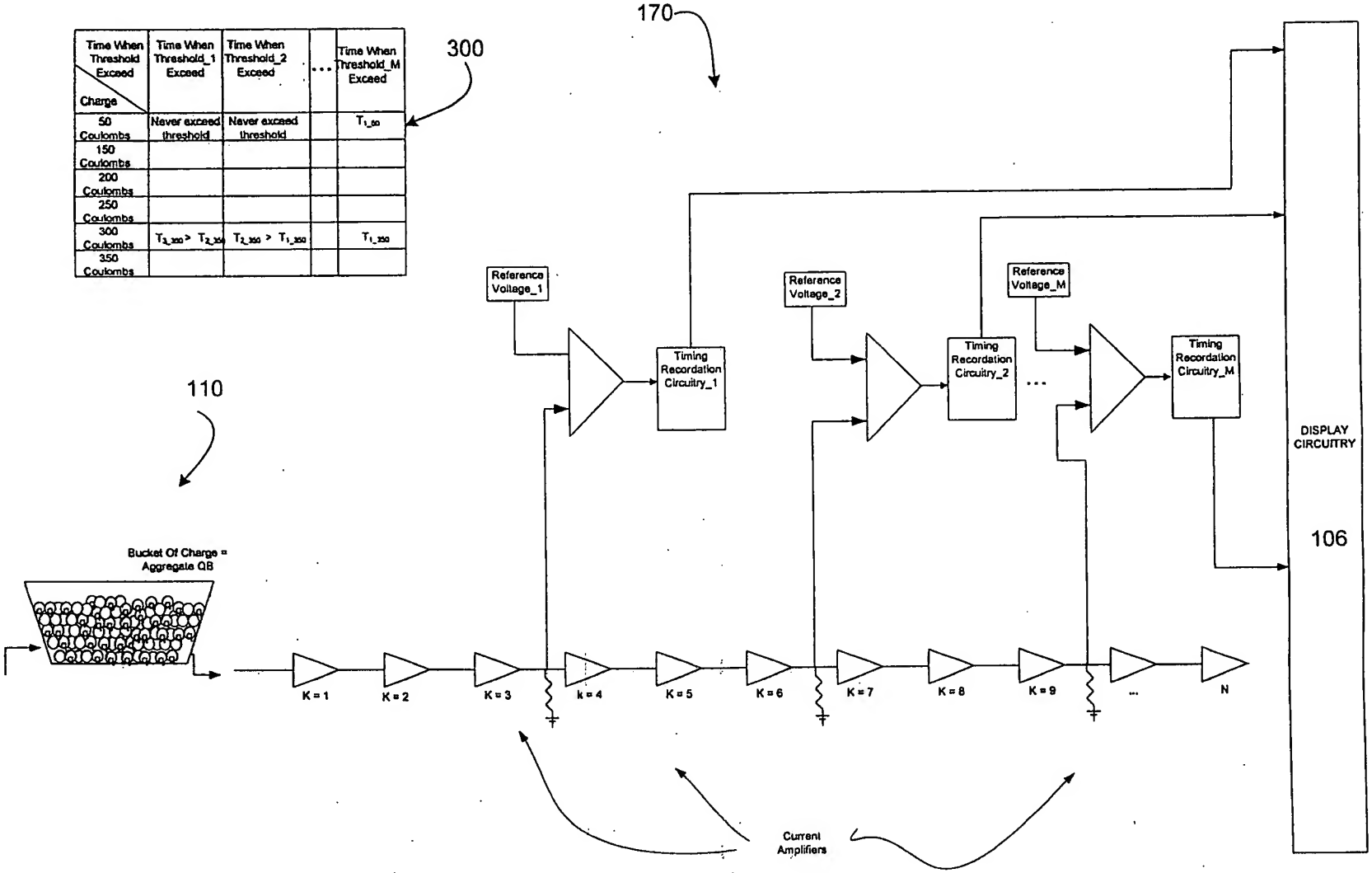

100
108
102
Bucket Of Charge = Aggregate QA
Reference Voltage_1
To Display Circuitry
Timing Recordation Circuitry_1
Reference Voltage_2
Timing Recordation Circuitry_2
Reference Voltage_P
Timing Recordation Circuitry _P
K = 1
K = 2
K = 3
k = 4
K = 5
K = 6
K = 7
K = 8
K = 9
N
150
106
DISPLAY CIRCUITRY
170
110
Bucket Of Charge = Aggregate QB
Reference Voltage_M
Timing Recordation Circuitry_M

FIG. 2

FIG. 3


170
300
Time When Threshold Exceed / Charge
Time When Threshold_1 Exceed
Time When Threshold_2 Exceed
...
Time When Threshold_M Exceed
50 Coulombs
Never exceed threshold
Never exceed threshold
T_{1_50}
150 Coulombs
200 Coulombs
250 Coulombs
300 Coulombs
$T_{3_300} > T_{2_300} > T_{1_300}$
T_{1_350}
350 Coulombs
110
Bucket Of Charge = Aggregate QB
Reference Voltage_1
Reference Voltage_2
Reference Voltage_M
Timing Recordation Circuitry_1
Timing Recordation Circuitry_2
Timing Recordation Circuitry_M
DISPLAY CIRCUITRY
106
K = 1
K = 2
K = 3
k = 4
K = 5
K = 6
K = 7
K = 8
K = 9
...
N
Current Amplifiers

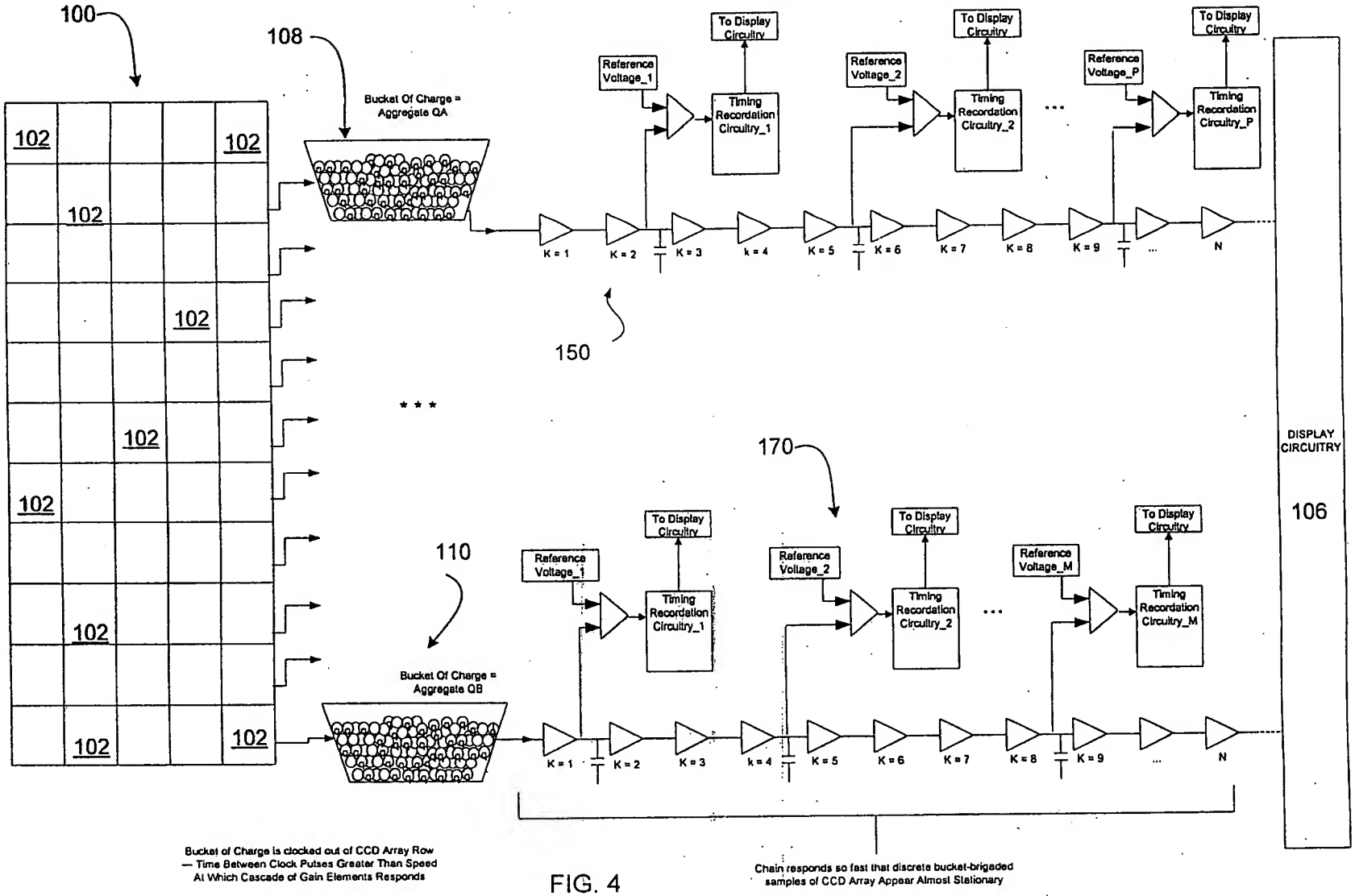

100
108
102
Bucket Of Charge = Aggregate QA
Reference Voltage_1
To Display Circuitry
Timing Recordation Circuitry_1
Reference Voltage_2
Timing Recordation Circuitry_2
Reference Voltage_P
Timing Recordation Circuitry_P
K = 1
K = 2
K = 3
k = 4
K = 5
K = 6
K = 7
K = 8
K = 9
N
150
170
110
Bucket Of Charge = Aggregate QB
Reference Voltage_M
Timing Recordation Circuitry_M
DISPLAY CIRCUITRY
106
Bucket of Charge is clocked out of CCD Array Row — Time Between Clock Pulses Greater Than Speed At Which Cascade of Gain Elements Responds
Chain responds so fast that discrete bucket-brigaded samples of CCD Array Appear Almost Stationary

FIG. 4

FIG. 5

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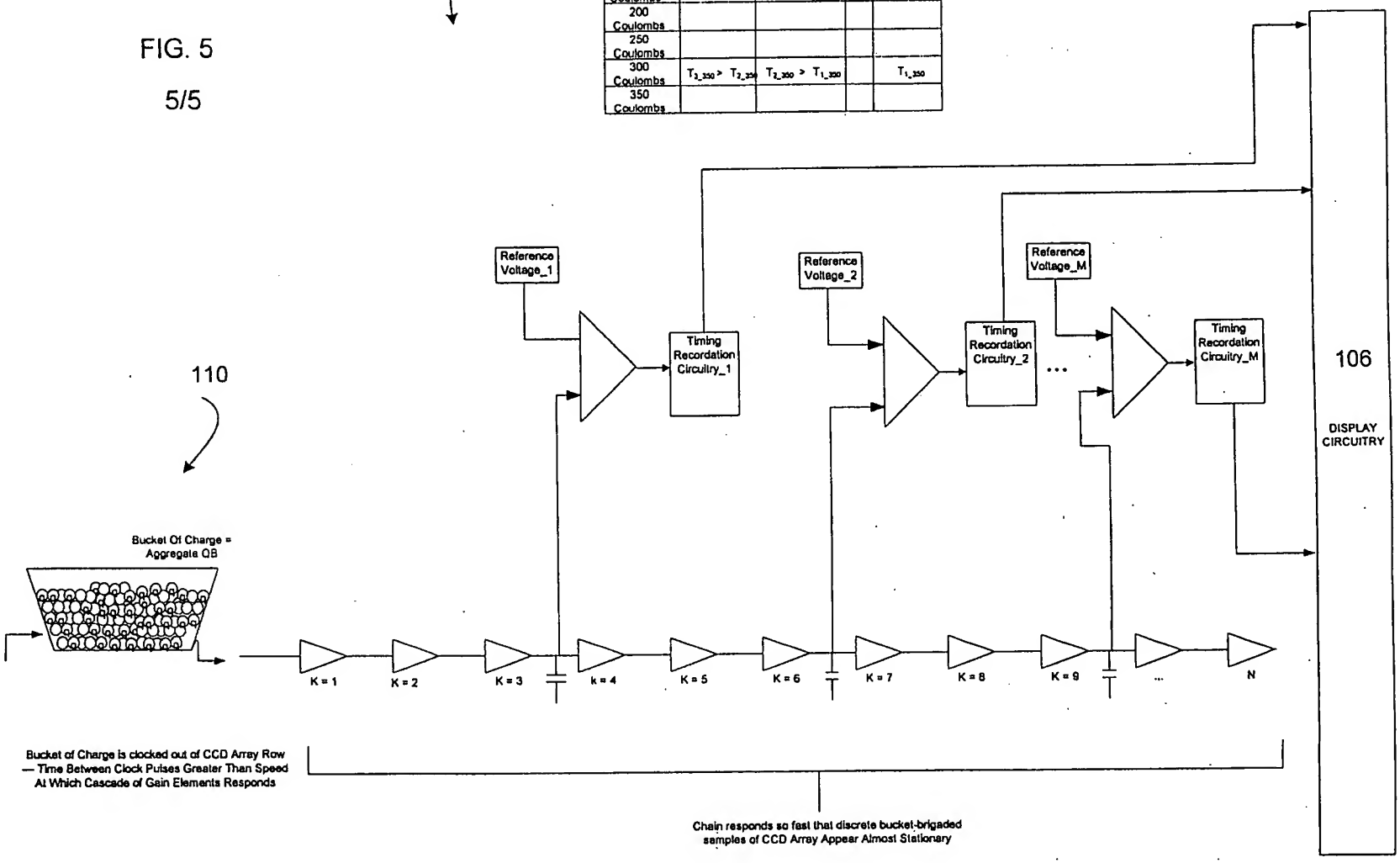
Time When Threshold Exceed / Charge	Time When Threshold_1 Exceed	Time When Threshold_2 Exceed	...	Time When Threshold_M Exceed
50 Coulombs	Never exceed threshold	Never exceed threshold		T_{1_50}
150 Coulombs				
200 Coulombs				
250 Coulombs				
300 Coulombs	$T_{3_350} > T_{2_350}$	$T_{2_350} > T_{1_350}$		T_{1_350}
350 Coulombs